



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,814	03/23/2004	Atsushi Okuyama	1232-5349	4400
27123	7590	11/02/2005	EXAMINER	
MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101			SEVER, ANDREW T	
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/807,814	Applicant(s) OKUYAMA ET AL.	
	Examiner Andrew T. Sever	Art Unit 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species I in the reply filed on 8/15/2005 is acknowledged. The traversal is on the ground(s) that no serious burden. This is not found persuasive because species I reads on all currently pending claims and therefore applicant's argument is currently moot and therefore applicant has elected by original presentation. The other species do require additional search and consideration and accordingly any introducing the other species through amended or new claims will be considered non-responsive.

The requirement is still deemed proper and is therefore made FINAL.

Specification

2. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Art Unit: 2851

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

3. The abstract of the disclosure is objected to because applicant states a relationship between two wavelengths which are not defined in the abstract. Correction is required. See MPEP § 608.01(b).

In the present case although the abstract is a concise statement it does not specifically disclose what the novel subject matter is as the two wavelengths could be anything.

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Ouchi et al. (US 6,626,540.)

Ouchi teaches in figure 15 a color splitting/combining optical system comprising:

A first optical member (102), which splits light from a light source into a first color light component and a second color light component, the first optical member directing the first color light component to a first image-forming element (107G);

A second optical member (105RB) which has a polarization splitting surface and splits the second color light component into a third color light component and a fourth color light component by using the polarization splitting surface, the second optical member directing the third color light component to a second image-forming element (107B) and directing the fourth color light component to a third image forming element

(107R), and furthermore, the second optical member combining the third color light component from the second image-forming element with the fourth color light component from the third image-forming element by using the polarization splitting surface;

A third optical member (105RGB) which combines the third and fourth color light components, which are combined by the second optical member, with the first color light component from the first image-forming element;

A first color-selective wave plate (112a) disposed between the first optical member and the second optical member, which converts the polarization direction of a light component in a first wavelength region by 90 degrees;

A second color-selective wave plate (112b) disposed between the second optical member and the third optical member, which converts the polarization direction of a light component in a second wavelength region by 90 degrees; and

A color filter (103b) provided between the first optical member and the first color-selective wave plate, which substantially continuously has a first optical transmission band, and optical non-transmission and second optical transmission band from a short wavelength side to a long wavelength side,

As can clearly be seen wave-plate (17) affect red wavelengths while wave-plate (18) affects blue wavelengths. As shown in figures 16B and 16C where line P1 has a 50% value at 600nm and line P2 has a 50% value at 500nm (when removing the light filtered out by the color filter represented in figure 16a), wherein P1 is response of wave-

plate 112a and P2 is the response on wave-plate 112b, applicant's claimed limitations are met.

With regards to applicant's claim 2-5:

The light incident on the polarization-splitting surface between the two 50% wavelengths is substantially S polarized (see the zone between S2 and S1 in figure 16c).

With regards to applicant's claim 6:

16A shows the response of the optical filter where 0 transmission lies between the two 50% filter wavelengths (see figure 16C which shows the claimed limitation).

With regards to applicant's claims 7-9:

See figure 7 for example which shows the color splitting/combining optical system with respect to a projection apparatus which contains a light source (1), a projection lens (20), and reflective liquid crystal image forming elements (see column 24 lines 28-65 for example.)

With regards to applicant's claims 10-13, 15, and 17:

See above especially with regards to applicant's claim 6.

With regards to applicant's claims 14 and 16:

See above.

Art Unit: 2851

7. Claims 10-13, 15, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Mihalakis (US 6,375,330.)

Mihalakis teaches in figure 4 a color splitting/combining optical system comprising:

A first optical member (DM1), which splits light from a light source into a first color light component and a second color light component, the first optical member directing the first color light component to a first image-forming element (I1(G));

A second optical member (P2) which has a polarization splitting surface and splits the second color light component into a third color light component and a forth color light component by using the polarization splitting surface, the second optical member directing the third color light component to a second image-forming element (I3(B)) and directing the fourth color light component to a third image forming element (I2(R)), and furthermore, the second optical member combining the third color light component from the second image-forming element with the fourth color light component from the third image-forming element by using the polarization splitting surface;

A third optical member (P3) which combines the third and fourth color light components, which are combined by the second optical member, with the first color light component from the first image-forming element;

A first color-selective wave plate (R2) disposed between the first optical member and the second optical member, which converts the polarization direction of a light component in a first wavelength region by 90 degrees;

A second color-selective wave plate (R3) disposed between the second optical member and the third optical member, which converts the polarization direction of a light component in a second wavelength region by 90 degrees; and

A color filter (DM2) provided between the first optical member and the first color-selective wave plate, which substantially continuously has a first optical transmission band, and optical non-transmission and second optical transmission band from a short wavelength side to a long wavelength side,

The limitations with regards to wavelengths of the first and second optical transmission bands are met by Mihalakis in figure 5A-5C. For example λ_{c1} and λ_{c2} are shown in figure 5A and would be approximately at 500 and 595 nm respectively. λ_0 would be shown in figure 5C and be approximately 550 nm which meets applicant's claimed limitation. (Since both first and second color-selective wave-plates convert the same wavelengths the average of the 50% ratio wavelength would be the 50% ratio wavelength of each.

With regards to applicant's Claim 11:

See figure 1 which shows the color splitting/combining optical system of Mihalakis' figures 4 and 5 in the context of a image projection system comprising of a light source (20), first through third image-forming elements (I1(G), I3(b), and I2(R)), and projection optical system (47).

Art Unit: 2851

With regards to applicant's claim 12 and 13:

Mihalakis specifies in column 18 lines 1 and 2 and elsewhere, which teaches that the imagers are reflective liquid crystal on silicon imager devices which is a type of liquid crystal element.

With regards to applicant's claims 15 and 17:

See above.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 6,327,093 to Nakanishi et al. teaches in figure 2 the response of filters/splitters in a projector shown in figure 1.

US 6,347,014 to Hayashi et al. teaches in figure 3 for example transmittance of various color filters in a projector.

US 2005/0062936 is a copending application and should be reviewed for possible double patenting before/while-making amendment to the present application.

Art Unit: 2851

US 2004/0156022 is a copending application and should be reviewed for possible double patenting before/while-making amendments to the present application. Applicant should also note that this publication could be used in a 35 USC §102(e) rejection of applicant's claims as its inventorship is not identical and was filed prior to the filing date of the current application. Such a rejection would be made final. (See figures 1-3 where parts 7, 8b, 13, 12a, 12d, and 9r-g correspond to first, second, third optical elements, first and second color sensitive wave plates, and first through third imaging devices. Figures 2 and 3 show the same responses as shown in the present applicant's figures 2 and 3.)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Sever whose telephone number is 571-272-2128. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2851

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William Perkey
Primary Examiner

AS